

## ABSTRACT

A first average detecting circuit detects an average of output signals of a pre-amplifying unit that controls an amplification gain based on a result of comparison between an output of the first average detecting circuit and a predetermined reference voltage. A discriminating circuit receives an output signal of the pre-amplifying unit as an input signal and performs a signal discrimination of the input signal based on a threshold. A second average detecting circuit detects an average of input signals to the discriminating circuit. The discriminating circuit receives an output of the second average detecting circuit as the threshold.